An Analysis of the Application of Ant Colony Optimisation and Genetic Algorithms to the Learning of Successful Combinations of Strategies in Robocode

Max Ward   Mitchell Misich

November 2, 2013

Abstract

Table of Contents

1 Introduction

An introduction of the aim of the experiment.

1.1 Ant Colony Optimization

1.2 Genetic Algorithms

1.3 Neuroevolution

1.4 Genetic Programming

2 Implementation

2.1 Strategies

2.2 Fitness Calculation

2.3 Issues Faced with Robocode API

3 Experiment Design

3.1 Strategy Learning using ACO and GA

3.1.1 Aim

3.1.2 Experimental Hypothesis

3.1.3 Methodology and Rationale

4 Results

4.1 Strategy Learning

4.1.1 Rate of Convergence

5 Conclusion

5.1 Strategy Learning

Is GA or ACO the better choice? Issues faced with both Strengths of both